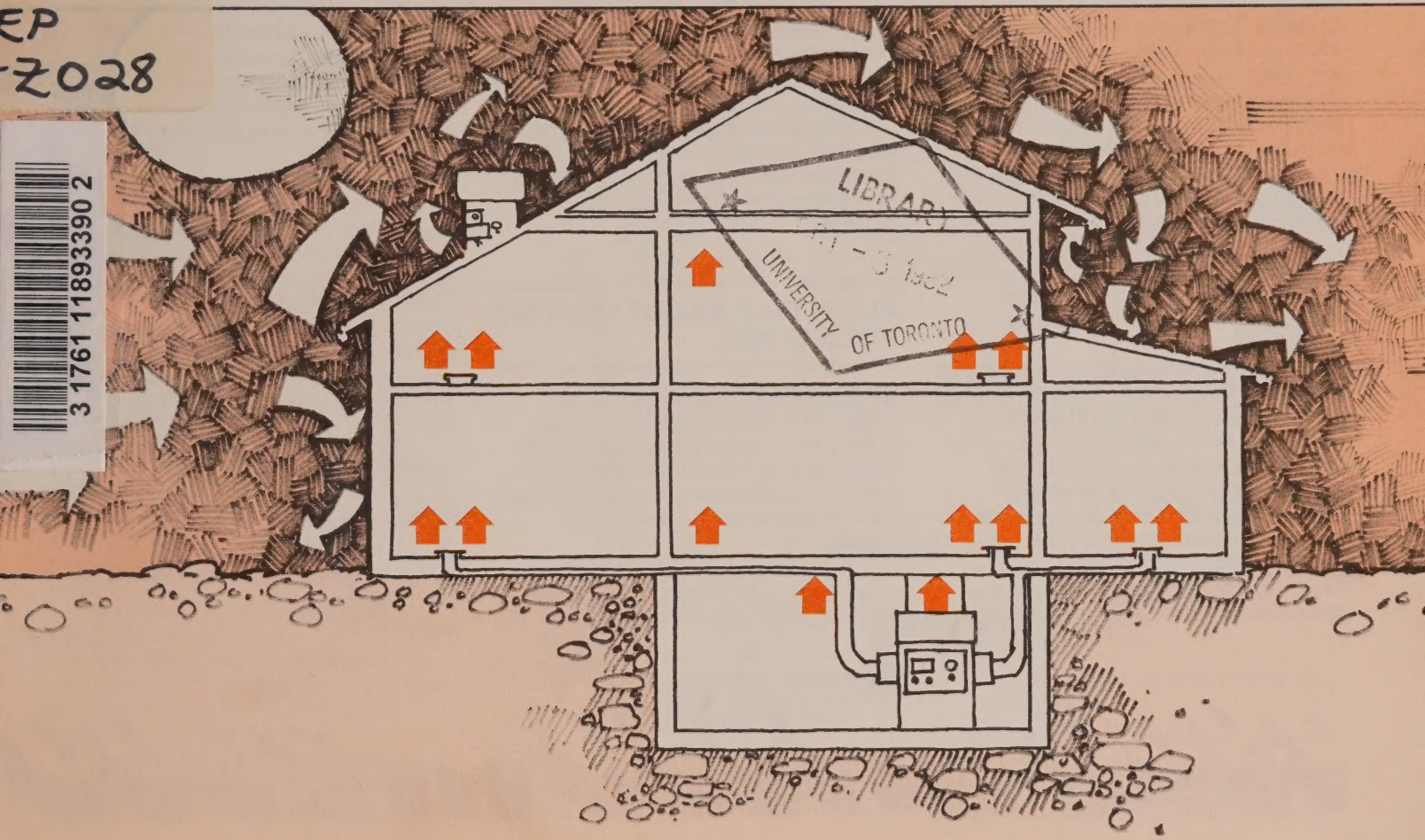
PLAIN TALK ABOUT HEATING YOUR HOME.



FOREWORD

Energy, in whatever form, is too valuable to waste. That is why it is important to make sure your home is weatherproofed with storm doors, storm windows or double-glazing, weather stripping and caulking and, of course, upgraded insulation levels.

All of these guard against the waste of energy for home heating and cooling and high energy bills.

Another important point is maintenance. Make sure your heating system is in good working order and is tuned annually. Clean or replace filters at regular intervals.

If you are thinking of converting your present heating system, several choices of home heating fuels are available depending on the circumstances—natural gas, electricity, propane and wood. A combination "dual energy" system may be the best choice, especially if your present system is in good condition. These dual energy systems could include such combinations as oil, gas, electric and wood.

Just make sure your choice of combination or conversion is checked out by a qualified contractor, a reputable equipment dealer and your local energy supplier.

As for electric heat, this booklet provides answers to many of the questions posed by people considering converting to partial or total electric heating.

PLAIN TALK ABOUT HEATING YOUR HOME

No doubt about it, costs are a major concern for homeowners and using energy wisely will always be your best hedge against inflation, no matter how you heat your home. Using energy wisely now will also help to extend future supplies.

If you heat your home with oil, you may be concerned about rising prices and uncertain supplies in the future. Oil is needed in areas other than home heating—such as transportation—and its supply and price are influenced by unpredictable foreign policies. You may want to consider modifying or converting your present heating system to another energy source.

Ontario Hydro anticipates that electric heating will be less expensive than heating with oil in the early 1980's, and in the future it will become increasingly competitive with natural gas heating. Now may be the time to modify or convert your present heating system, especially if it is out-of-date and may soon need replacement or costly repairs. You may want to consider a dual energy system.

But, before you decide to modify or convert your present heating system, look at all possibilities and options. This booklet is designed to present an overall picture of the electric heating options, and to help you find the right system for your home.

1980...1990...2000

Can my heating system be converted to electricity?

Any heating system can be converted and a qualified contractor will be able to advise you. He will evaluate your present system, what will be needed to complete the conversion, how easily the change can be made, and what it will cost.

STEP 1

Is insulation really that important?

In these days of rising fuel costs, most people simply can't afford to let heat escape, regardless of the fuel used.

If your home is 10 years old or older, chances are it has only minimal insulation by today's standards. No matter what heating system you decide upon, it will pay you to upgrade your insulation before winter sets in.

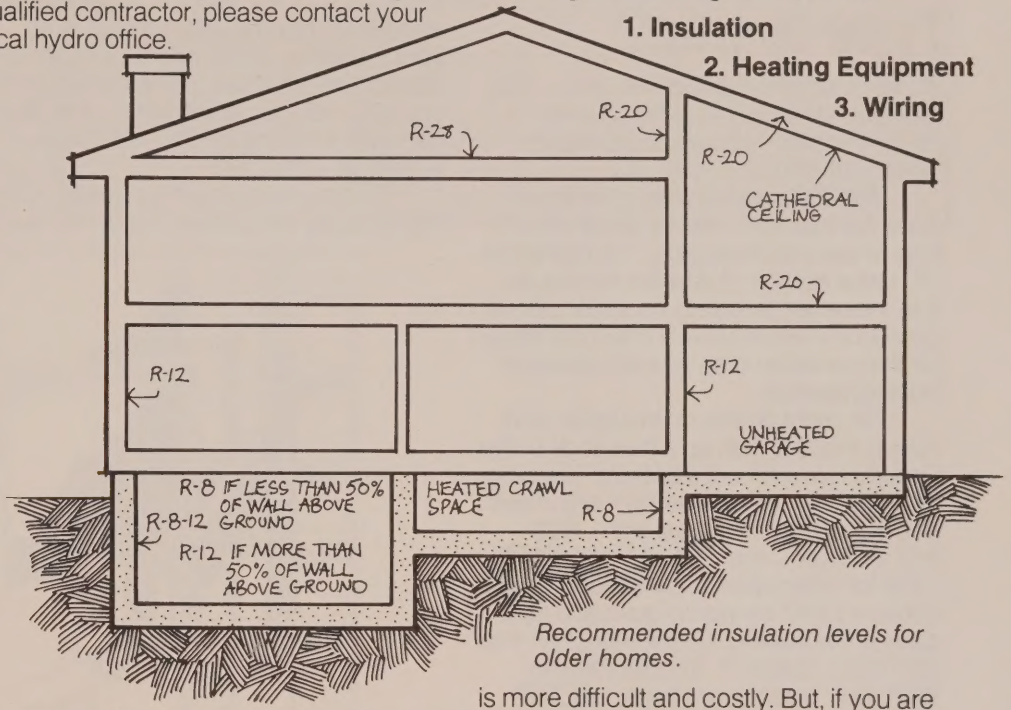
Insulation helps keep the heat out during summer and in during winter. It will reduce heating costs, make your home more comfortable, and you may find that extra insulation even increases the resale value of your home.

Generally, adding insulation to the ceiling of your home produces the greatest energy savings, and can usually be done by the homeowner. Insulation on the basement walls can also be cost effective. Adding insulation to other walls is more difficult and costly. But, if you are planning to install new siding on your home or redecorate the interior, it's a good time to upgrade the wall insulation.

All prices quoted in this booklet are approximations only to provide you with information to compare the systems. Should you have any difficulty locating a qualified contractor, please contact your local hydro office.

In order to change a residential heating system partially or totally to electricity, three steps must be considered to guarantee a good installation:

1. Insulation
2. Heating Equipment
3. Wiring



Recommended insulation levels for older homes.

How much insulation do you need and what is the best type to use?

There are many types of insulation. The type you select will depend on where it will be installed, who will install it and what it will cost.

The "R" value indicates the resistance the insulation has to winter heat loss or summer heat gain. The higher the "R" value number the better the insulation. However, installing insulation above the recommended levels may cost more for the insulation than you will realize in heating savings.

For more details on insulation and how to install it, pick up a free copy of the Federal Government's booklet "Keeping the Heat In". Call toll free from anywhere in Ontario, Enersave heat line 1-800-267-9563 or Ontario CHIP *1-800-268-1818 for information on whether you can obtain a CHIP insulation grant and for a copy of the booklet. Or write to CHIP, P.O. Box 1270, Station T, Toronto, Ontario M6B 4A4. Toronto residents call CHIP 365-6000.

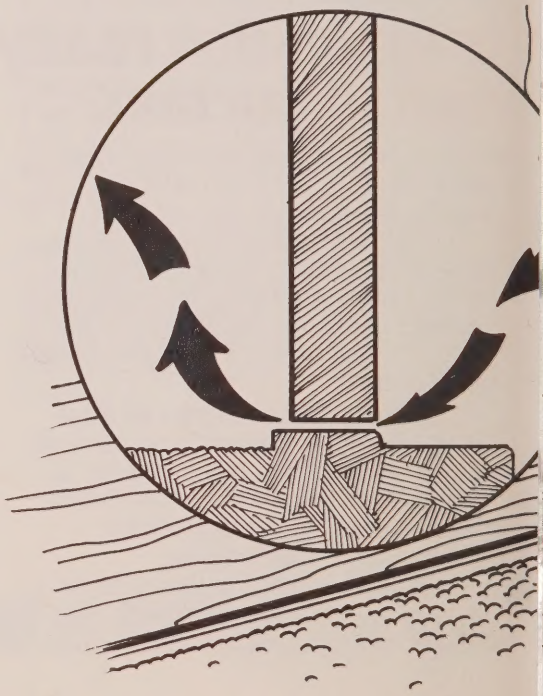
*Canadian Home Insulation Plan

What about weatherstripping, caulking and sealing leaks?

In order to maximize the efficiency of your insulation, caulk and weatherstrip cracks around doors and windows. A 0.6 cm or ¼ inch gap along the bottom of a door is like having a 58 sq. cm (9 sq. inch) hole in the wall.

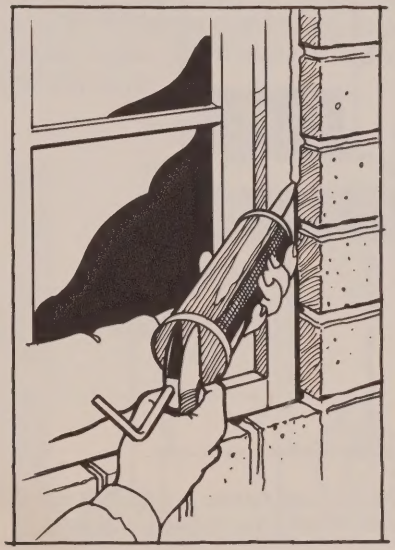
Weatherstripping and caulking cost little and pay off quickly. Your home and your pocketbook will be more comfortable without expensive cold draughts creeping in through door and window cracks.

Even if you plan to stay with your present furnace system—now is a good time to recaulk windows and weatherstrip doors. Your building supply dealer will recommend the amount and type best suited to the construction of your home—and may offer helpful advice on application.



A Simple Guide to Selecting Weatherstripping

Type	Effectiveness	Where Applied
Combination kits (vinyl foam on wood strips or rolled vinyl in aluminum strips)	Excellent	Doors (especially when warped)
Closed-cell vinyl foam	Excellent	Doors (top & sides) Windows (top & bottom)
Vinyl-covered polyurethane foam	Good	Doors (top & sides, mainly)
Hair felt	Fair	Doors (top & sides) Windows (top & bottom



A caulking gun defends your home against heat robbery through cracks around door and window frames.

STEP 2

Is it worth switching to electric heat...my oil furnace is almost like new?

Have your furnace inspected by your oil service dealer. If it is still in good condition, but you want to reduce your oil consumption, you may decide to partially convert to electricity. Your heating or electrical contractor can advise you on the best and most economical dual energy system (electricity and oil) for your heating needs.

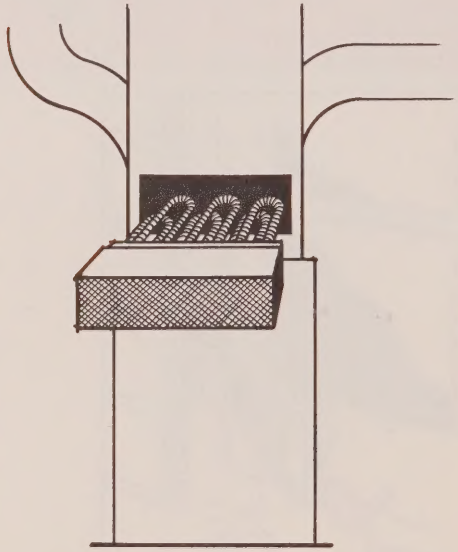
PARTIAL ELECTRIC HEATING (DUAL ENERGY SYSTEMS)

The amount of oil required in a dual energy system would depend on the amount of electric heat installed and the way you operate your system. Sufficient electric heating could be installed so that one tank of oil could carry your home through a heating season.

There are a variety of dual energy systems such as:

Electric plenum heater and oil

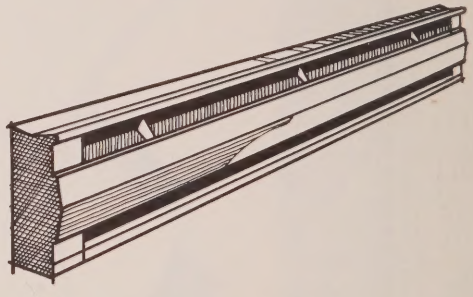
An electric plenum heater is installed in the duct above the existing furnace. A special two-stage thermostat will bring on the plenum heater first and if this is unable to supply enough heat the plenum heater will shut off and the oil furnace will automatically start. Some plenum heaters are equipped with controls to prevent over-loading of existing wiring, but in some cases wiring must be updated.



An electric plenum heater is installed right on the duct above your existing furnace.

Electric baseboard and oil

Electric baseboards can be installed in your home to provide sufficient heat for all but the coldest days. They are controlled in much the same way as the plenum heater. The baseboards provide heat until the outside temperature falls below a certain level, then a special two-stage thermostat will start the oil furnace. As an alternative they can be installed in the most frequently used rooms.



The installed cost of an electric plenum heater or electric baseboard heaters will depend on the size of your home and the heating capacity installed but could be between $500 and $1,000 including the controls.

Heat pump and oil

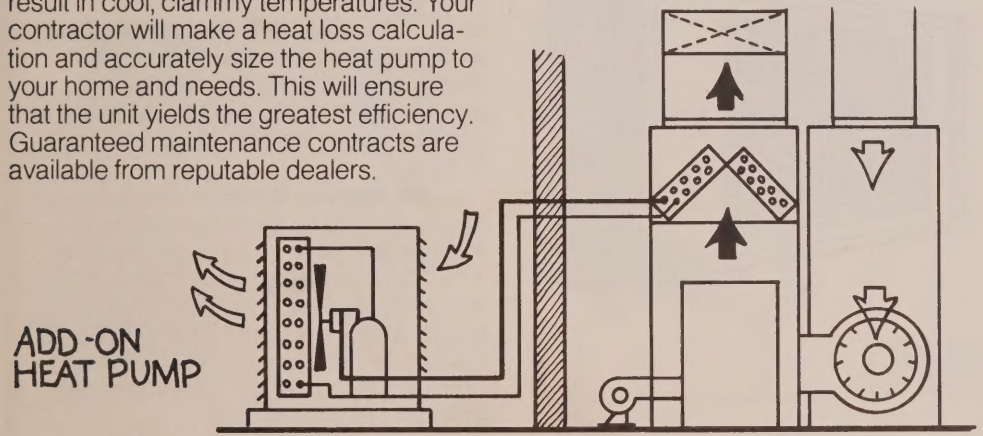
Add-on heat pumps are quickly gaining popularity. A heat pump is not a new idea, but until recently it wasn't generally practical for our Canadian climate.

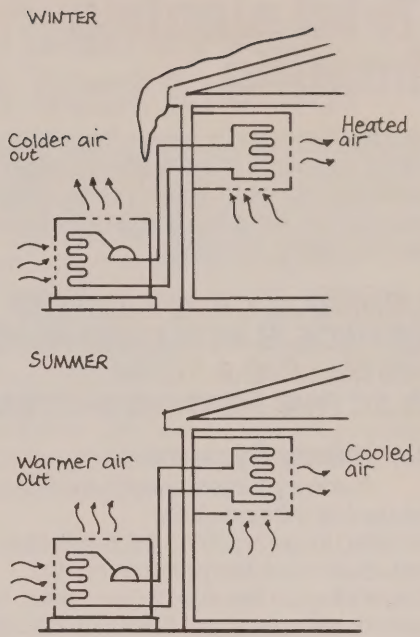
The heat pump is an electric heating and cooling system that heats your home by extracting heat from outdoor air, raising its temperature, and discharging this heat into your furnace ducts or pipes. The heat pump can heat your home until outside temperatures fall to almost freezing. The oil furnace will then automatically take over.

The heat pump can also provide summer cooling by removing heat from indoor air and expelling it outdoors. It is especially important to install the proper size of heat pump. Too small a unit will not cool properly and too large a unit will result in cool, clammy temperatures. Your contractor will make a heat loss calculation and accurately size the heat pump to your home and needs. This will ensure that the unit yields the greatest efficiency. Guaranteed maintenance contracts are available from reputable dealers.

The cost to install an add-on heat pump can range from $2,000 to $3,000. As the heat pump uses the heat from outdoor air, it is an energy efficient appliance that can pay for its installation cost with energy savings. The pay back period would be about 10 years. If you had planned to install central air conditioning, but decided on a heat pump instead, the return on your investment less the cost of a central air conditioner would be 3-4 years.

For names of heat pump manufacturers who will recommend a qualified installer, call the Heating, Refrigeration & Air Conditioning Institute of Canada, (416) 239-8191, or your local Hydro. A booklet on heat pumps is being prepared jointly by the Ministry of Energy and Ontario Hydro, and should be available later this year.





Ask your installer for the completed form "A", Air-To-Air Heat Pump Installation Data. This is your assurance that your heat pump is installed to the requirements of CSA Standard C273-5M.

Total electric heating

Electric heating is available in a variety of forms; individual room heating (unitary systems), hot water (hydronic systems), and electric furnaces and duct heaters (air circulating systems).

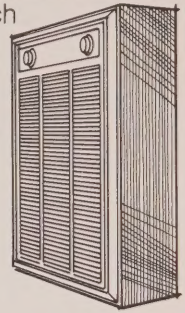
GENERALLY, A 200-AMPERE SERVICE IS REQUIRED WHEN INSTALLING A TOTAL ELECTRIC HEATING SYSTEM.

1. Unitary Systems

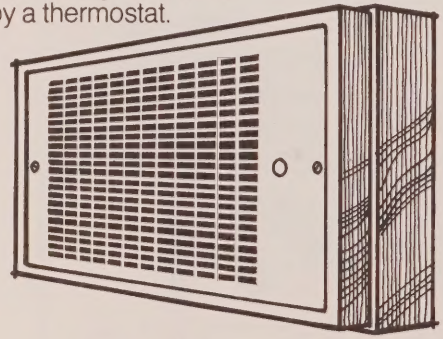
A unitary system employs electric heaters and thermostats installed in each room, which provides individual room temperature control. Depending on the size of your home, this system will cost about $2,000 to $3,000 including upgrading your wiring to a 200-ampere service.

Baseboard units are one of the most common systems, because they are easy to install, quiet, and require little or no maintenance. They are individually controlled by a thermostat mounted on the wall of each room, or on the heater itself.

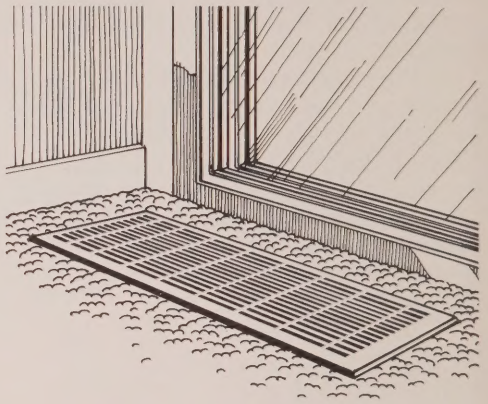
Fan-forced convectors are especially suited for small areas that need a great amount of heat, such as entranceways and playrooms. Various models offer different air flows; up, down, or horizontal. Again, they are controlled by a thermostat mounted on the wall of each room or on the heater itself.



Wall insert heaters provide fast warm up where space is limited, such as bathrooms, utility rooms and entranceways. They are inserted into the wall and are sometimes used to supplement other heating systems. They too are individually controlled by a thermostat.



Floor insert or drop-in units are recessed right into the floor. They are most suitable for use in front of floor level windows.

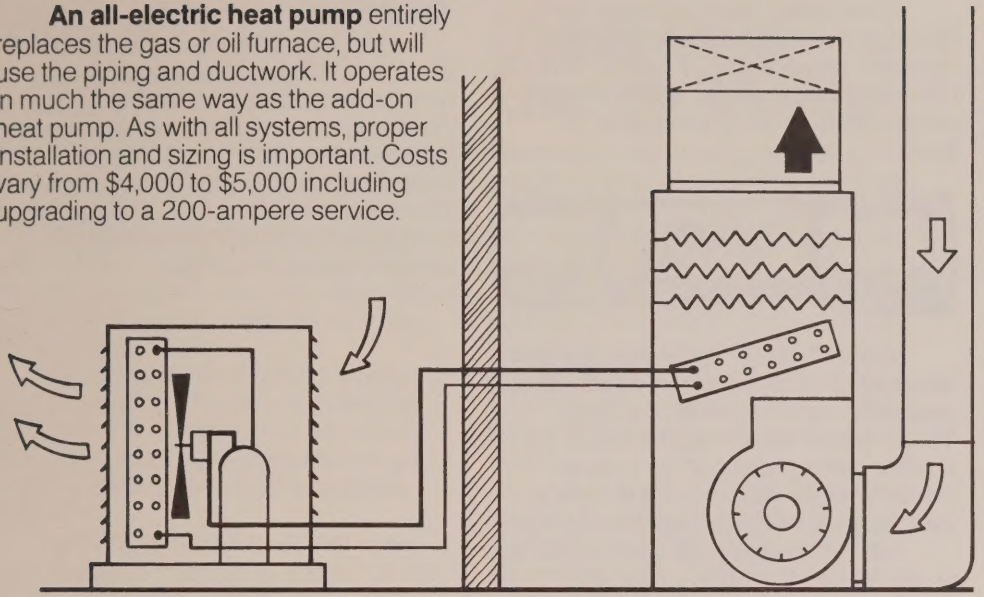


2. Air Circulating Systems

An electric plenum heater referred to earlier in the PARTIAL ELECTRIC HEATING section can have additional elements added in order to supply your total heating needs. The approximate cost including upgrading to a 200-ampere service would be $1,500 to $1,700.

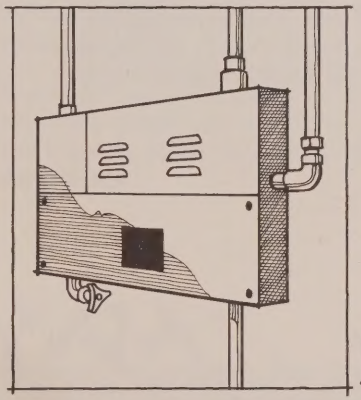
An electric furnace simply replaces the existing furnace. It operates in a manner similar to an oil or gas furnace. The cost of installing an electric furnace, including upgrading the electrical wiring to 200 ampere is about $1,800 to $2,000. Central air conditioning, air filtering and humidification can also be incorporated at some increase in cost.

An all-electric heat pump entirely replaces the gas or oil furnace, but will use the piping and ductwork. It operates in much the same way as the add-on heat pump. As with all systems, proper installation and sizing is important. Costs vary from $4,000 to $5,000 including upgrading to a 200-ampere service.



3. Hydronic Systems

To convert your present hot water heating system to electricity, only the boiler needs replacing with a new electric boiler. A circulation pump forces the hot water from the boiler through pipes to radiators. The hydronic system is compact and can be installed on a basement wall, or in a utility room. No venting is required and temperatures may be controlled by zone or individual room thermostats. The cost to install an electric boiler, including upgrading the electrical wiring to a 200-ampere service, ranges from $2,000 to $2,700.



HYDRONIC SYSTEM

Which system is best for me?

Electric heating is versatile, and a variety of systems can be used together to suit your heating needs. For example, a forced-air furnace can heat the living-room areas, providing constant air circulation, while baseboard heaters in the bedrooms provide individual comfort control. Wall heaters in the entranceways will quickly heat up cold draughts.

A qualified heating or electrical contractor can best analyze your needs and suggest the heating system for you.

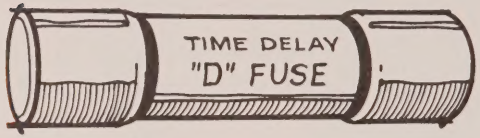
STEP 3

If I convert to electric heating, will it be necessary to upgrade my wiring?

Partial Electric Heating

If you decide on a partial conversion to electric heating, up to 3000 watts of heating load can usually be added to a 60-ampere service, and up to 10,000 watts can be added to an 100-ampere service. By installing special load limiting devices, the above wattages may be increased. These load controllers automatically limit the electric heating when large appliances are being used. Depending on the amount of heating required, the installed cost would be $100 to $150 for each controller.

When using load controllers on a 60-ampere service, it is important to install 60-ampere type "P" or "D" fuses in the main fuse panel. On a 100-ampere service, install 100-ampere type "D" fuses.



Type "P" or "D" Canadian Standards Association (CSA) approved fuses should always be used for electric heating. They cost more than regular fuses, but provide better protection for heavier electrical loads, and may be bought at your local hardware or department store.

After your wiring has been upgraded or load controllers added, have the installation inspected by Ontario Hydro. *Make sure your contractor applies for inspection before the circuits are energized and the wiring is hidden behind walls.*

Total Electric Heating

If you are planning to install total electric heating, in most cases you will need to increase the capability of your electric system to a 200-ampere service. Depending on what is required to increase your present system from 60 or 100-ampere to 200-ampere, costs range from $800 to $1,000. Your electrical contractor can advise you.

Where do I go from here?

Check with the Better Business Bureau for qualified, reputable heating or electrical contractors. Ask friends and neighbours for their experiences in dealing with contractors. With any system, it is important to obtain price bids, and always a good idea to obtain references from previous customers.

A heating or electrical contractor, or heat loss consultant, can calculate the heat losses in each room of your home, evaluate the capacity of equipment you need, and advise you on the systems available.

If you're considering a heat pump, the Heating, Refrigerating and Air Conditioning Institute of Canada (416) 239-8191 can provide names of heat pump manufacturers who will recommend qualified installers.

In all cases, ensure that the equipment is CSA certified and have the electrical installation inspected by Ontario Hydro.

Using Your Energy Wisely

Remember, the heating system is important to your comfort, so no matter which system you use, regular cleaning and maintenance will help to keep it running efficiently.

Clean or replace furnace filters at least once a month during the heating season. If your home has baseboard, wall mounted, or fan forced heaters, use your vacuum cleaner to clean them before and occasionally during the winter.

A 5 to 10 per cent saving may be realized by permanently lowering your thermostat setting to 20°C (68°F), as compared to 22°C (72°F). Let the sun shine in during the day to heat up the house, and close the drapes at night to keep the heat in.

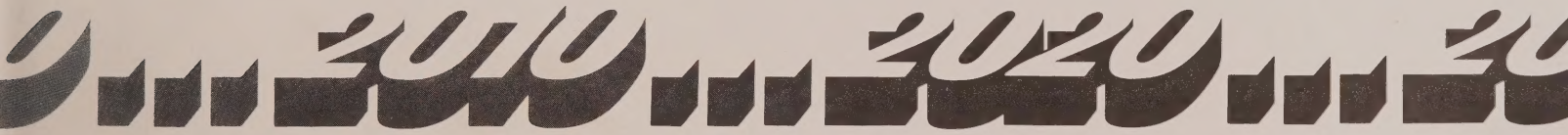
It's a waste of money to heat rooms that aren't used. Simply close doors leading to these rooms and turn down thermostats, close registers, or turn off the radiator.

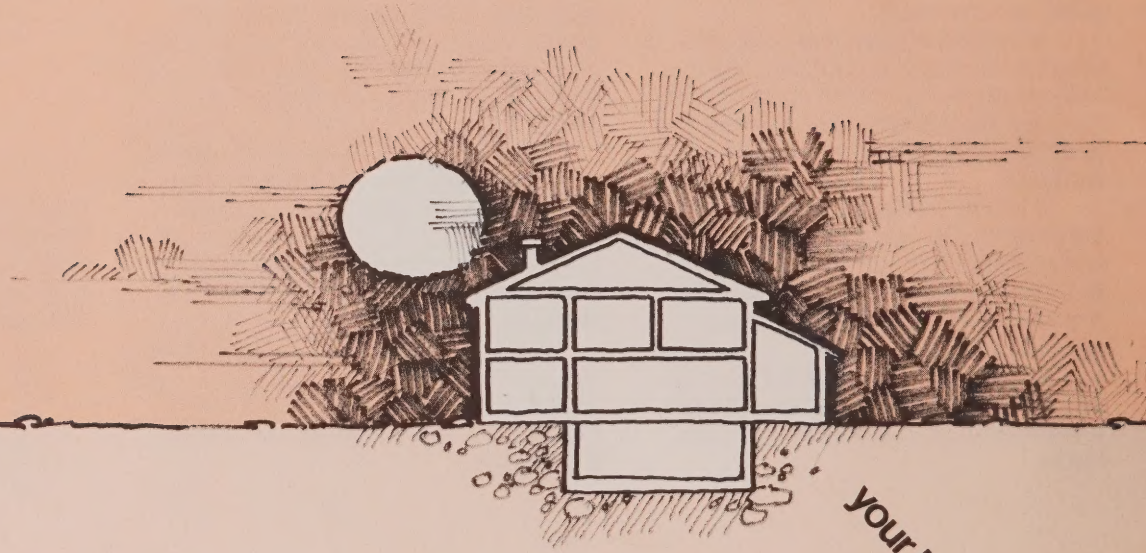
Anything you do to help take the load off your heating system will save you money. Installing insulation, weatherstripping, caulking and storm doors will pay off in the long run.

Remember, energy you don't use is energy you don't pay for.

Note: *All prices quoted are approximate only and are used in order to compare systems. Should you have any difficulty locating a qualified contractor please contact your local Hydro office.*

This booklet is designed mainly for residential heating systems. For other systems contact a qualified contractor or consultant, your local Hydro office or Ontario Hydro.





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